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Indian Standard

(Reaffirmed 1996)



muan Stanuaru

SPECIFICATION FOR QUARTZ CRYSTAL UNITS USED IN OSCILLATORS

PART II SERIES AA

Section 2 Quartz Crystal Unit Type AA-02

- 0. General This standard shall be read in conjunction with IS: 8271 (Part I)-1981 'Specification for quartz crystal units used for frequency control and selection: Part I General requirements and tests (first revision)'.
- 1. Outline and Dimensions Holder outline shall conform to type AA (See sheet 1A of IS: 4570-1968 'Specification for crystal holders').
- 2. Marking See 8 of IS: 8271 (Part I)-1981.
- 3. Construction and Workmanship See 7 of IS: 8271 (Part 1)-1981.
- 4. Test Schedule and Detail Requirements
- 4.1 General Conditions for Test See 9.2 of IS: 8271 (Part I)-1981.
- 4.2 Test Schedule The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS: 8271 (Part I)-1981.
- 4.3 Detail Requirements The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUA	RTZ CRYSTAL UNIT	TYPE AA-01		
Characteristics	Requi	Requirements		
a) Type of holder	AA (See 1)	(2)		
b) Frequency range	1 to 20 MHz			
c) Frequency tolerance; i) Over operating temperature range	! E0 man			
d) Resonance resistance	±50 ppm See Table 2			
e) Mode of oscillation	Fundamental			
f) Load capacitance	32 ± 0.5 pF			
g) Capacitance shunt	7 pF, Maximum			
h) Operating temperature range	-55°C to 90°C			
j) Test set, calibration values and rated drive level	See Table 3			
k) Shock [as per 9.15 of IS: 8271 (Part I)-1981]: i) Frequency change permitted ii) Resonance resistance change permitted	1 to 2 MHz ±10 ppm ±15 percent	Over 2:0 to 20 MHz ±5 ppm ±10 percent		
m) Vibration [as per 9.16.1 (severity A) of IS: 8271 (Part I)-1981]:				
Frequency change permitted Resonance resistance change permitted	±10 ppm ±15 percent	±5 ppm ±10 percent		
n) Temperature cycling: i) Frequency change permitted ii) Resonance resistance change permitted	±10 ppm ±15 percent	±5 ppm ±10 percent		
p) Temperature run:	•			
Frequency change permitted Resonance resistance change permitted	±10 ppm ±15 percent	±5 ppm ±10 percent		
q) Ageing Frequency change permitted	5 ppm	_		

Adopted 8 May 1981

@ August 1981, ISI

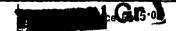


TABLE 2 RESONANCE RESISTANCE

[Table 1(d)]

Frequency Range	Maximum Resonance Resistance	Frequency Range	Maximum Resonance Resistance
MHz	ohms	MHz	ohms
(1)	(2)	(1)	(2)
From 0.9 to 1	580	Over 3·4 to 3·75	90
Over 1.0 to 1.12	-540	Over 3.75 to 4	75
Over 1:12 to 1:25	490	Over 4 to 5	60
Over 1.25 to 1.37	450	Over 5 to 7	35
Over 1:37 to 1:5	410	Over 7 to 10	24
Over 1.5 to 1.62	380	Over 10 to 15	22
Over 1.62 to 1.75	330	Over 15 to 20	20
Over 1.75 to 1.87	-300		
Over 1:87 to 2	290		
Over 2 to 2·12	270		,
Over 2:12 to 2:25	250		
Over 2:25 to 2:6	200		
Over 2.6 to 3	150		
Over 3 to 3·4	110		

TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL

[Table 1(j)]

SI No.	Frequency Range		Rated Drive		
		Resistance	Crystal Current	Resistor Voltage Drop	Level
	MHz	ohms	mA	V	mW
(1)	(2)	(3)	(4)	(5)	(6)
1	From 0.8 to 1.5	100	10	– j	
2	Over 1.5 to 2.25	50	15	-	, à
3	Over 2:25 to 3:4	40	15		40.0.00
4	Over 3.4 to 5.1	25	20	- 1	10·0±2·0
5	Over 5·1 to 7·5	14	25	-	
6	Over 7.5 to 10	11	30		
7	Over 10 to 15	13	20	· <u>-</u>	5·0±1·0
8	Over 15 to 20	10	_	0.22	5·0±1·0

For SI No. 1 to 7 — Test Set TS-330/TSM

For SI No. 8 — Test Set TS-683/TSM

